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EXAMINER

PATEL, DEVANG R

ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 14-15, 17-20, 22-23 and 27** are rejected under 35 U.S.C. 102(b) as being anticipated by Elmore et al. (US 3017792).

a. **Regarding claim 14**, Elmore et al. (“**Elmore**”) discloses a sonotrode for an ultrasonic welding device having a longitudinal axis, the sonotrode having a head portion comprising at least one working surface for welding metal which is substantially parallel to the longitudinal axis, a front surface which is substantially perpendicular to the at least one working surface, and a back surface (figs. 1-3, 9; col. 9, lines 5-34). The sonotrode transfers ultrasonic vibrations in the direction of the longitudinal axis and the front surface of the sonotrode includes a reinforcement which is capable of reducing deflection of the working surface since it is structurally indistinguishable from the claimed reinforcement. The reinforcement has a triangular geometry in a section of the longitudinal axis and is shaped symmetrically with respect to a symmetry plane in which the longitudinal axis runs (fig. 3; col. 7, lines 40-45). Note similarities between Elmore’s Figure 3 and Applicant’s Figure 2.

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- b. **As to claim 15**, in accordance with broadest reasonable interpretation, the term “rib” is defined to be a structural member that supports any shape and so, the reinforcement of Elmore is equivalent to a rib (figs. 2-6).
- c. **As to claim 17**, the reinforcement of Elmore increases in height over the front surface from a peripheral edge of the front surface at the at least one working surface, in the direction of the longitudinal axis.
- d. **As to claim 18**, the reinforcement of Elmore runs perpendicular to the at least one working surface.
- e. **As to claims 19-20 and 22**, the reinforcement of Elmore is shaped as a beam in a linear manner. The reinforcement projects from the entire front surface.
- f. **As to claim 23**, the limitation of deflection upon ultrasonic excitation concerns functionality of the reinforcement. Since the reinforcement of Elmore is structurally indistinguishable from the claimed reinforcement, such triangular reinforcement is inherently expected to provide the claimed deflection ratio.
- g. **As to claim 27**, the reinforcement of Elmore is unitary in structure with the sonotrode head (figs. 2-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 24-26** are rejected under 35 U.S.C. 103(a) as being obvious over Elmore et al. (US 3017792).

h. As to claims 24-26, Elmore does not expressly disclose the reinforcement extension distance over the front surface. However, Elmore teaches that one having ordinary skill in the art can modify the tapered resonant tips with known equations for many tapered structures in order to calculate with a fair degree of precision the precise dimensions of the taper. Elmore further teaches that the dimensions of the resonant tips can be adjusted to compensate for taper, other modifications in shape, and to stabilize performance frequency (col. 7, lines 15-45). In view of that, it would have been obvious to a person of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges of reinforcement extension (such as 10 mm) through routine experimentation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. An artisan would have been motivated to select the claimed ranges of reinforcement extension in order to compensate for taper, other modifications in shape, and to stabilize performance frequency (col. 7, lines 15-45).

Response to Amendment and Arguments

Applicant's arguments with respect to claim 14 have been considered but are moot in view of the new ground(s) of rejection under Elmore set forth above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claims 14-15, 17-20 and 22-27 are rejected.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

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Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devang Patel/
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793